MATHEMATICS OF COMPUTATION

CONTENTS

Vol. 69, No. 229 January 2000

R. H. Nochetto, A. Schmidt, and C. Verdi, A posteriori error estimation and adaptivity for degenerate parabolic problems 1

Dietmar Kröner and Mario Ohlberger, A posteriori error estimates for upwind finite volume schemes for nonlinear conservation laws in multi dimensions 25

Bruno Franchi and Maria Carla Tesi, A finite element approximation for a class of degenerate elliptic equations 41

Einar Haug and Ragnar Winther, A domain embedding preconditioner for the Lagrange multiplier system 65

Matthias Wiedmer, Finite element approximation for equations of magnetohydrodynamics 83

So-Hsiang Chou and Qian Li, Error estimates in L^2, H^1 and L^∞ in covolume methods for elliptic and parabolic problems: A unified approach 103

Daniele Boffi, Franco Brezzi, and Lucia Gastaldi, On the problem of spurious eigenvalues in the approximation of linear elliptic problems in mixed form 121

Zhimin Zhang, Ultraconvergence of the patch recovery technique II 141

Qun Lin and Ningning Yan, Global superconvergence for Maxwell's equations 159

Dongwoo Sheen, Ian H. Sloan, and Vidar Thomée, A parallel method for time-discretization of parabolic problems based on contour integral representation and quadrature 177

Z. Wiener and Y. Yomdin, From formal numerical solutions of elliptic PDE's to the true ones 197

G. N. Milstein and M. V. Tretyakov, Numerical algorithms for semilinear parabolic equations with small parameter based on approximation of stochastic equations 237

David Hunter and Geno Nikolov, On the error term of symmetric Gauss-Lobatto quadrature formulae for analytic functions 269

Liqun Qi and Defeng Sun, Improving the convergence of non-interior point algorithms for nonlinear complementarity problems 283

Avram Sidi, Extrapolation methods and derivatives of limits of sequences 305

Svein Mossige, The Postage Stamp Problem: An algorithm to determine the h-range on the h-range formula on the extremal basis problem for $k = 4$ 325

Stefan Johansson, On fundamental domains of arithmetic Fuchsian groups 339

R. Lercier and F. Morain, Computing isogenies between elliptic curves over F_{p^n} using Couveignes's algorithm 351

Stéphane Louboutin, Computation of relative class numbers of CM-fields by using Hecke L-functions 371

Guillaume Hanrot, Solving Thue equations without the full unit group 395

William Butske, Lynda M. Jaje, and Daniel R. Mayernik, On the equation $\sum_{p|N} \frac{1}{p} + \frac{1}{N} = 1$, pseudoperfect numbers, and perfectly weighted graphs 407

Jean-Marc Deshouillers, François Hennecart, Bernard Landreau, with an appendix by I. Gusti Putu Purnaba, 7 373 170 279 850 421

Reviews and Descriptions of Tables and Books 441

Adhemar Bultheel, Pablo Gonzáles-Vera, Erik Hendriksen, and Olav Njåstad **1**

Vol. 69, No. 230 **April 2000**

Ivo Babuška and John E. Osborn, Can a finite element method perform arbitrarily badly? 443

James H. Bramble, Joseph E. Pasciak, and Panayot S. Vassilevski, Computational scales of Sobolev norms with application to preconditioning 463

Sergey I. Repin, A posteriori error estimation for variational problems with uniformly convex functionals 481

Vladimir Shaidurov and Lutz Tobiska, The convergence of the cascadic conjugate-gradient method applied to elliptic problems in domains with re-entrant corners 501

Padmanabhan Seshaiyer and Manil Suri, Uniform *hp* convergence results for the mortar finite element method 521

J. B. Burie and M. Marion, Adaptive multilevel methods in space and time for parabolic problems—the periodic case 547

Hailiang Liu, Convergence rates to the discrete travelling wave for relaxation schemes 583

C. González and C. Palencia, Stability of Runge–Kutta methods for quasilinear parabolic problems 609

Goong Chen, Yuanhua Deng, Wei-Ming Ni, and Jianxin Zhou, Boundary element monotone iteration scheme for semilinear elliptic partial differential equations, Part II: Quasimonotone iteration for coupled 2×2 systems 629

Hyek Yoo, Semi-discretization of stochastic partial differential equations on $\mathbb{R}^1$ by a finite-difference method 653

James H. Bramble, Joseph E. Pasciak, and Apostol T. Vassilev, Uzawa type algorithms for nonsymmetric saddle point problems 667

Gert Vegter, The apolar bilinear form in geometric modeling 691

A. Bultheel, C. Díaz-Mendoza, P. González-Vera, and R. Orive, On the convergence of certain Gauss-type quadrature formulas for unbounded intervals 721

Silvia Dassiè, Marco Vianello, and Renato Zanovello, A new summation method for power series with rational coefficients 749
Raymond Couture and Pierre L'Ecuyer, Lattice computations for random numbers 757
David C. Terr, A modification of Shanks' baby-step giant-step algorithm 767
Gene Ward Smith, Some polynomials over $\mathbb{Q}(t)$ and their Galois groups 775
Gerard van der Geer and Marcel van der Vlugt, Tables of curves with many points 797
Toshihiro Kumada, Hannes Leeb, Yoshiharu Kurita, and Makoto Matsumoto, New primitive t-nomials $(t = 3, 5)$ over $GF(2)$ whose degree is a Mersenne exponent 811
H. G. Grundman, Explicit resolutions of cubic cusp singularities 815
C. J. Smyth, Salem numbers of negative trace 827
Alain Togbé, On the solutions of a family of quartic Thue equations 839
István Gaál and Günter Lettl, A parametric family of quintic Thue equations 851
Carter Bays and Richard H. Hudson, Zeroes of Dirichlet L-functions and irregularities in the distribution of primes 861
Douglas E. Iannucci, The third largest prime divisor of an odd perfect number exceeds one hundred 867

Vol. 69, No. 231 **July 2000**

Jinchao Xu and Aihui Zhou, Local and parallel finite element algorithms based on two-grid discretizations 881
Richard S. Falk and Tong Tu, Locking-free finite elements for the Reissner-Mindlin plate 911
Dan-Ping Yang, Analysis of least-squares mixed finite element methods for nonlinear nonstationary convection-diffusion problems 929
M. Farhloul, S. Nicaise, and L. Paquet, A mixed formulation of Boussinesq equations: Analysis of nonsingular solutions 965
Laurent Gosse and François James, Numerical approximations of one-dimensional linear conservation equations with discontinuous coefficients 987
Norbert Hofmann, Thomas Müller-Gronbach, and Klaus Ritter, Optimal approximation of stochastic differential equations by adaptive step-size control 1017
D. Calvetti, G. H. Golub, W. B. Gragg, and L. Reichel, Computation of Gauss-Kronrod quadrature rules 1035
Ilya M. Spitkovsky and Darryl Yong, Almost periodic factorization of certain block triangular matrix functions 1053
Jean-Pierre Dedieu and Mike Shub, Multihomogeneous Newton methods 1071

J. P. Dedieu and M. Shub, Newton's method for overdetermined systems of equations 1099
Andreas Griewank, Jean Utke, and Andrea Walther, Evaluating higher derivative tensors by forward propagation of univariate Taylor series 1117
Divakar Viswanath, Random Fibonacci sequences and the number 1.13198824... 1131
Peter Borwein and Michael Mossinghoff, Rudin-Shapiro-like polynomials in L_4 1157
P. G. Walsh, A polynomial-time complexity bound for the computation of the singular part of a Puiseux expansion of an algebraic function 1167
P. G. Walsh, Irreducibility testing over local fields 1183
Emmanuel Halberstadt and Alain Kraus, On the modular curves $Y_E(7)$ 1193
T. Fukuda and K. Komatsu, On a unit group generated by special values of Siegel modular functions 1207
Christian Friesen, Class group frequencies of real quadratic function fields: The degree 4 case 1213
Henri Cohen and Xavier-François Roblot, Computing the Hilbert class field of real quadratic fields 1229
R. Scheidler and A. Stein, Voronoi's algorithm in purely cubic congruence function fields of unit rank 1 1245
Oliver Schirokauer, Using number fields to compute logarithms in finite fields 1267
Carter Bays and Richard H. Hudson, A new bound for the smallest x with $\pi(x) > \mathrm{li}(x)$ 1285
R. P. Brent, R. E. Crandall, K. Dilcher, and C. Van Halewyn, Three new factors of Fermat numbers 1297
Reviews and Descriptions of Tables and Books 1305
P. G. Ciarlet and J. L. Lions, Editors **2**, Thierry Dubois, Francois Jauberteau, and Roger Temam **3**, Jack J. Dongarra, Iain S. Duff, Danny C. Sorensen, and Henk A. van der Vorst **4**, R. B. Lehoucq, D. C. Sorensen, and C. Yang **5**, Arnold R. Krommer and Christoph W. Ueberhuber **6**, Wolmer V. Vasconcelos **7**, S. C. Coutinho **8**
Table Errata 1317
Landon Curt Noll and David I. Bell **635**
Supplement to "Almost periodic factorization of certain block triangular matrix functions" by **Ilya M. Spitkovsky and Darryl Yong** S1

Vol. 69, No. 232 **October 2000**

Susanne C. Brenner and Li-Yeng Sung, Lower bounds for nonoverlapping domain decomposition preconditioners in two dimensions 1319
Lori Badea and Junping Wang, An additive Schwarz method for variational inequalities 1341

M. Lukáčová-Medvid'ová, K. W. Morton, and G. Warnecke, Evolution Galerkin methods for hyperbolic systems in two space dimensions 1355
Cheng Wang and Jian-Guo Liu, Convergence of gauge method for incompressible flow 1385
Christopher Beattie, Galerkin eigenvector approximations 1409
E. B. Davies, A hierarchical method for obtaining eigenvalue enclosures 1435
Elena Celledoni and Arieh Iserles, Approximating the exponential from a Lie algebra to a Lie group 1457
Shoufu Li, Stability and B-convergence properties of multistep Runge-Kutta methods 1481
Michael S. Floater and J. M. Peña, Monotonicity preservation on triangles 1505
Jieqing Tan and Shuo Tang, Bivariate composite vector valued rational interpolation 1521
Stefano Serra Capizzano, Korovkin tests, approximation, and ergodic theory 1533
Charles H. Tong and Qiang Ye, Analysis of the finite precision bi-conjugate gradient algorithm for nonsymmetric linear systems 1559
J. I. Aliaga, D. L. Boley, R. W. Freund, and V. Hernández, A Lanczos-type method for multiple starting vectors 1577
Jin Qi-nian, On the iteratively regularized Gauss-Newton method for solving nonlinear ill-posed problems 1603
Jean-Marc Couveignes, Isomorphisms between Artin-Schreier towers ... 1625
Alexander Hulpke, Conjugacy classes in finite permutation groups via homomorphic images 1633
F. Thaine, Families of irreducible polynomials of Gaussian periods and matrices of cyclotomic numbers 1653
Jerzy Browkin, with an appendix by Karim Belabas, and Herbert Gangl, Computing the tame kernel of quadratic imaginary fields 1667
Paul van Wamelen, Poonen's question concerning isogenies between Smart's genus 2 curves 1685
Robert Gallant, Robert Lambert, and Scott Vanstone, Improving the parallelized Pollard lambda search on anomalous binary curves 1699
Niklas Broberg, Some examples related to the *abc*–conjecture for algebraic number fields 1707
Everett W. Howe, Higher-order Carmichael numbers 1711
Andreas Stein and H. C. Williams, Explicit primality criteria for $(p-1)\,p^n-1$ 1721
Kenji Koyama, On searching for solutions of the Diophantine equation $x^3+y^3+2z^3=n$ 1735
Reviews and Descriptions of Tables and Books 1743
C. T. Kelly **9**